

THAT WHICH IS CLAIMED IS:

1. A method of attaching a sensor (14) and a housing (24) to opposite sides of a stratum (10),

the sensor (14) comprising a sensing face (16) with a sensing area, and at least one signal output contact;

the stratum (10) comprising a circuitry face (12), at least one signal input contact, and an aperture (22);

and wherein;

the sensing face (16) of the sensor (14) is placed over the aperture (22) so that the at least one signal output contact of the sensor (14) makes contact with the at least one signal input contact of the stratum (10),

and the stratum (10) is adapted to receive the housing (24);

such that the housing (24) and the sensor (14) are in alignment.

2. A method of attaching a sensor (14) to a stratum (10),

the sensor (14) comprising a sensing face (16) with a sensing area, and at least one signal output contact;

the stratum (10) comprising a circuitry face (12) and at least one signal input contact;

wherein the stratum (10) is provided with an aperture (22), and the sensing face (16) of the sensor (14) is placed over the aperture (22) so that

the at least one signal output contact of the sensor (14) makes contact with the at least one signal input contact of the stratum (10).

3. The method of claim 1 or claim 2, wherein the at least one signal output contact is located on the sensing face (16) of the sensor (14).

4. The method of any preceding claim, wherein the dimensions of the aperture (22) are of at least equal magnitude to the dimensions of the sensing area of the sensing face of the sensor (14).

5. The method of any preceding claim, wherein the dimensions of the aperture (22) are of equal magnitude to the dimensions of the sensing face (16) of the sensor (14).

6. The method of any preceding claim, wherein bump bonds (20) are provided on the circuitry face (12) of the stratum (10), and are interposed between the signal output contacts and the signal input contacts so that signals detected by the sensor (14) can be transmitted to the circuitry of the stratum (10).

7. The method of claim 6, wherein the bump bonds (20) are positioned around the perimeter of the aperture (22).

8. The method of any preceding claim, wherein the sensor (14) is pressed to the stratum

(10), and then the bump bonds (20) are heated so that they melt to draw the sensor (14) into alignment over the aperture (22).

9. The method of any preceding claim, wherein the sensor (14) is a charge-coupled device or CMOS image sensor.

10. The method of any preceding claim, wherein the sensing area of the sensing face (16) of the sensor (14) comprises a semiconductor based image sensor.

11. The method of claim 10, wherein the semiconductor based image sensor comprises a photodiode array.

12. The method of any of claims 1 to 8, wherein the sensor is a light sensitive sensor suitable for use with a bio-optical system.

13. The method of any preceding claim, wherein the stratum (10) comprises a printed circuit board.

14. The method of any of claims 3 to 13 when dependent on claim 1, wherein the housing (24) is provided with a formation (32) that mates with the aperture (22) in the stratum (10)

15. The method of any of claims 3 to 14 when dependent on claim 1, wherein the housing (24)

is provided with projections (34) that mate with additional apertures (36) in the stratum (10).

16. The method of any of claims 3 to 15 when dependent on claim 1, wherein the housing (24) comprises a lens.

17. The method of any of claims 3 to 15 when dependent on claim 1, wherein the housing (24) comprises a lens (26) that is separable from the body (28) of the housing (24).

18. The method of any claims 16 or claim 17, wherein the lens is threadably attached to the body (28) of the housing (24).

19. The method of any of claims 3 to 15 when dependent on claim 1, wherein the housing comprises a matter delivery system suitable for delivering a bio-optical analyte to the sensor.

20. The method of claim 19, where the matter delivery system is also suitable for delivering a bio-optical reagent to the sensor.

21. An aligned sensor package comprising a sensor (14) and a housing (24) attached to opposite sides of a stratum (10),

the sensor (14) comprising a sensing face (16) with a sensing area, and at least one signal output contact;

the stratum (10) comprising a circuitry face (12), at least one signal input contact, and an aperture (22);

wherein,

the sensing face (16) of the sensor (14) is situated over the aperture (22) so that the at least one signal output contact of the sensor (14) is in contact with the at least one signal input contact of the stratum (10), and

the stratum (10) is adapted to receive the housing (24),

such that the housing (24) and the sensor (14) are in alignment.

22. An aligned sensor package as claimed in claim 21, wherein the dimensions of the aperture (22) are of at least equal magnitude to the dimensions of the sensing area of the sensing face (16) of the sensor (14).

23. An aligned sensor package as claimed in claim 21 or claim 22, wherein the dimensions of the aperture (22) are of equal magnitude to the dimensions of the sensing face (16) of the sensor (14).

24. An aligned sensor package as claimed in any of claims 21 to 23, wherein the signal output contacts and the signal input contacts are electrically connected via bump bonds (20).

25. An aligned sensor package as claimed in claim 24, wherein the bump bonds (20) are positioned around the perimeter of the aperture (22).

26. An aligned sensor package as claimed in any of claims 21 to 25, wherein the sensor (14) is a charge-coupled device or CMOS image sensor.

27. An aligned sensor package as claimed in any of claims 21 to 26, wherein the sensing area of the sensing face (16) of the sensor (14) comprises a semiconductor based image sensor.

28. An aligned sensor package as claimed in claim 27, wherein the semiconductor based image sensor comprises a photodiode array.

29. An aligned sensor package as claimed in any of claims 21 to 25, wherein the sensor is a light sensitive sensor suitable for use with a bio-optical system.

30. An aligned sensor package as claimed in any of claims 21 to 29, wherein the stratum (10) comprises a printed circuit board.

31. An aligned sensor package as claimed in any of claims 21 to 30, wherein the housing (24) comprises projections (34) that are mated with additional apertures (36) in the stratum (10).

32. An aligned sensor package as claimed in any of claims 21 to 31, wherein the housing (24) comprises a lens.

33. An aligned sensor package as claimed in any of claims 21 to 31, wherein the housing (24) comprises a lens (26) that is separable from the body (28) of the housing (24).

34. An aligned sensor package as claimed in any of claims 21 to 33, wherein the lens is threadably attached to the body (28) of the housing (24).

35. An aligned sensor package as claimed in any of claims 21 to 31, wherein the housing comprises a matter delivery system suitable for delivering a bio-optical analyte to the sensor.

36. An aligned sensor package as claimed in claim 35, wherein the matter delivery system is also suitable for delivering a bio-optical reagent to the sensor.

37. Apparatus for aligning a sensor (14) with respect to a housing (24), comprising;

a stratum (10) comprising a circuitry face (12) and an aperture (22), and bump bonds (20) situated on the circuitry face (12) around the perimeter of the aperture (22),

such that a sensing face (16) of the sensor (14) is attachable to the bump bonds (20),

and the housing (24) is attachable to the aperture (22).

38. Apparatus as claimed in claim 37, wherein the stratum (10) comprises additional apertures (36) which are mateable with projections (34) provided on the housing (24).